

IN THE CLAIMS:

Please cancel claim 8 without prejudice to or disclaimer of the subject matter contain therein.

Please amend claim 7 and add new claims 13-18 as follows:

LISTING OF CURRENT CLAIMS

Claims 1-6. (Canceled)

Claim 7. (Currently Amended) A power rectifier device, comprising:
a semiconductor substrate having a first conductive layer doped with first-type impurities, an epi layer formed thereon which is extended to a first surface thereof and is lightly doped with said first-type impurities;
5 a cathode metal layer formed on said first conductive layer opposite said first surface;
a first oxide layer formed on said first surface;
a nitride layer formed on said first oxide layer;
a pair of trenches formed through said nitride layer and said first oxide layer
10 and extending into a top portion of said epi-layer and spaced from each other by a first mesa region;
a termination mesa region surrounding said pair of trenches;
a second conductive type doped region formed into said epi layer of said first mesa region and said termination mesa region, wherein said first mesa region and
15 said termination mesa region are regions located on said first surface having said first oxide layer formed thereon;
a Schottky barrier silicide layer formed on said epi layer located on bottom and side surfaces of said trenches;
a top metal layer acting as an anode and formed on said Schottky barrier
20 silicide layer and extended to cover all surfaces of said first mesas region and a portion of said termination mesa region.

Claim 8. (Canceled)

Claim 9. (Original) The power rectifier device according to Claim 8 wherein said first oxide layer has a thickness between about 100 - 1000 nm and said nitride layer has a thickness between about 50 - 300 nm.

Claim 10. (Original) The power rectifier device according to Claim 8 wherein said trenches have a depth of between about 1 to 5 μ m measured from the surface of said epi layer.

Claim 11. (Original) The power rectifier device according to Claim 7 wherein said Schottky barrier silicide layer is formed of metal silicide selected from the group consisting of silicide of Ti, Ni, Cr, Mo, Pt, Zr, and W with silicon.

Claim 12. (Original) The power rectifier device according to Claim 7 wherein said top metal layer is formed of stacked layers of TiNi/Ag or TiW/AI.

Claim 13. (New) A power rectifier device, comprising:

a semiconductor substrate having a first conductive layer doped with first-type impurities, an epi layer formed thereon which is extended to a first surface thereof and is lightly doped with said first-type impurities;

5 a cathode metal layer formed on said first conductive layer opposite said first surface;

a first oxide layer formed on said first surface;

a pair of trenches formed through said first oxide layer and come into said epi-layer and spaced from each other by a first mesa region;

10 a termination mesa region surrounded said pair of trenches;

a second conductive type doped region formed beneath all remnant portions of said first surface;

a Schottky barrier silicide layer formed on sidewalls of epi layer portion and bottom of said trenches; and

15 a top metal layer acted as an anode formed on said Schottky barrier silicide layer and extended to cover all surfaces of said first mesas region and a portion of said termination mesa region.

Claim 14. (New) The power rectifier device according to Claim 13, further comprising a nitride layer formed in between said first oxide layer and said top metal layer.

Claim 15. (New) The power rectifier device according to Claim 14, wherein said first oxide layer has a thickness between about 100 - 1000 nm and said nitride layer has a thickness between about 50 - 300 nm.

Claim 16. (New) The power rectifier device according to Claim 14, wherein said trenches have a depth of between about 1 to 5mm measured from the surface of said epi layer.

Claim 17. (New) The power rectifier device according to Claim 13, wherein said Schottky barrier silicide layer is formed of metal silicide selected from the group consisting of silicide of Ti, Ni, Cr, Mo, Pt, Zr, and W with silicon.

Claim 18. (New) The power rectifier device according to Claim 13, wherein said top metal layer is formed of stacked layers of TiNi/Ag or TiW/Al.